

THE RETICULATE PYTHON
PYTHON RETICULATUS (Schneider)

BY

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NOMENCLATURE. (a) *Scientific*.—The specific name conferred by Schneider is from the Latin *reticulatus* a 'net-work', and refers to the character of the markings on the body, which is very distinctive, and serves to distinguish it from the Indian Python (*P. molurus*).

(b) *English*.—The name Reticulate Python should be upheld, as this exactly fits the scientific name. Residents in India frequently refer to it as the Malayan Python to distinguish it from its common Indian relative, which is distributed throughout Political India. The name is not a good one as the Malayan Sub-region claims at least three species of python, that dealt with in this paper, *P. curtus*, and *P. timorensis*.

(c) *Vernacular*.—Burmese 'Sa-ba-gee'. The Burmese who are a remarkable race for their knowledge of jungle craft, recognize two pythons which are called 'Sa-ba-ohn' (*P. molurus*), and 'Sa-ba-jee' (*P. reticulatus*). These they distinguish mainly I am informed by the number of pits in the anterior shields along the upper lip. This is one of the most reliable means of identification employed by scientists.

Identification.—The Indian Python (*P. molurus*) has two pits on the rostral shield (i.e., the shield on the front of the snout), and a pit on the 1st and 2nd supralabials (i.e. the shields bordering the upper lip). The Reticulate Python has in addition a pit on the 3rd and 4th supralabials. Another reliable guide to its identity lies in the number of shields on the belly (ventrals). In the Indian Python, these do not exceed 270, whereas in the Reticulate Python they are not less than 297.

Colouration.—Dorsally brown of various shades, with a series of large black rhomboidal or ovate marks, connected vertebally, running down the back from the neck to the vent. A smaller lateral series of similar marks correspond with, and are confluent to the median series. At the base of the tail there is a tendency to a continuation of the above pattern, but the detail is soon lost. The head has a black median line from the snout to the nape. A similar black line passes from the eye to the gape to be continued for a short distance down the forebody. The belly is dirty whitish or yellowish marbled laterally with brown.

HABITS (a) *Haunts*.—In Burma this python is only met with in the densest jungles, places unknown to Europeans with the exception of a few forest officers, and an occasional sportsman. In the Malay States and in Siam it is a fairly frequent intruder into

habitations. Captain Stanley Flower who was well acquainted with the snake says, 'This python is very numerous in the city and suburbs of Bangkok; in almost every compound of which I know the occupants, either private houses or offices, one or more pythons have been found within the last few years. Strange to say, it is not in the quiet jungle-forest that the python seems to prefer to live, but in the busiest spots along the Menam, where steamers and junks are loading and unloading, steam-launches whistling, steam-saws buzzing, rice-mill chimneys filling the air with smoke, and hundreds of noisy coolies passing to and fro; here he selects some hole, or crevice in building, timber-stack, or bank to spend the day in, and at night makes an easy living, devouring fowls, ducks, cats, dogs, and, it is said, pigs (which, together with countless pariah-dogs, vultures, kites and crows, are the regular scavengers of Bangkok). In May 1897, a python, 2,820mm. (or 9ft. 3in.) in length, was found in the Wang Luang (King's Palace).'

Like the Indian python it is frequently found near water, into which element it will frequently glide when disturbed.

(b) *Disposition*.—It is a remarkably lethargic snake, showing little or no inclination to escape when encountered. Theobald says that Burmans report it as a very harmless snake of timid disposition. Some when disturbed have buried their heads beneath their coils, and made no attempt to injure their assailants. This one can readily believe for with the strength at its command a large python could easily overpower a man. Captain A. G. Frere speaking of a specimen killed in the Pegu Yomas says, 'It was encountered by an officer and his party in the jungle, by the side of a fallen trunk. It lay coiled there and wouldn't move though surrounded by ten to twelve excited and noisy coolies. A Burman went up to it, and cut it at the base of the skull with his dah and killed it.' Mr. H. C. Smith and Mr. Pudden, two Forest Officers working from November 1924 to April 1925, in the dense jungles of South Tenasserim, obtained six pythons, five of which were *reticulatus*. Mr. Pudden tells me that all these specimens behaved in just the same manner as reported by Captain Frere, except the little three footer which was encountered by him on the banks of a stream. This glided off into the water on his approach, and swam submerged some distance. He shot it when it re-appeared on the surface. In the vivarium this python awakens little interest. It lies for hours completely inert, treating contemptuously all efforts on the part of spectators to provoke a movement.

(c) *Striking posture*.—Animated by the prospect of a meal, the snake bestirs itself, the quarry is seized, and the snake immediately encircles it with its coils, constricting the unfortunate victim until it is a lifeless mass, when it is swallowed. When defending itself it sometimes lunges its head forward and butts with great force.

(d) *Sloughing*.—Young that hatched out in Calcutta shed their skins for the first time when they were about a month old. I know of no observation on this function in adults.

FOOD. Records of its diet in its native haunts show that this is very varied. The late Dr. Annandale told me that on two occasions in the Siamese Malay States he found that the little deer *Tragulus*

javanicus had been victimized. Cantor says it feeds on quadrupeds and birds. Captain Stanley Flower already referred to mentions cats, dogs, pigs, fowls, and ducks. He records one killed in the Siamese King's Palace measuring 9 feet 3 inches, which on being cut open was found to contain one of the Royal cats, with the bell attached to its neck. In Regent's Park it has taken dead ducks offered.

Mr. E. G. Boulenger (The Field 5-4-13) mentions finding in the cage of a 22-footer caged in Regent's Park, three hair balls five inches in diameter, representing the undigested remains of a kid upon which it had fed ten days earlier. The young hatched out by Herr Fockelmann at Gross Borstel in 1907 accepted white mice, but those hatched out in Calcutta in the same year refused milk, eggs, frogs, small birds, and white mice, and died within three months.

FASTING. That this python can exist and maintain its health for very long periods without taking food is exemplified by the remarkable instance of a captive specimen in Regent's Park, that refused food for one year, and eleven months after which it indulged in a meal and continued to feed normally. During incubation food is not accepted.

DRINKING. Like other snakes it slakes its thirst by drinking, swallowing water in gulps, and not lapping.

BREEDING. (a) *The Sexes*.—I know of no difference in the sexes except that the claw-like termination of the concealed rudimentary hind limb, which is visible near the cloacal orifice, is relatively larger in the male.

(b) *Method of Reproduction*.—This species like most other pythons is known to be oviparous. (The African *P. regius* is viviparous).

In Hagenbeck's case the dam gathered her eggs together by encircling them in her coils, in such a manner as to avoid subjecting them to her weight. During the period of incubation she was observed at times to release her coils, so that some of the eggs became visible. After 79 days of unremitting attention, the dam forsook her eggs when the first hatchling was observed emerging from its shell.

The dam that deposited eggs in Calcutta in 1907 acted similarly, beginning to encircle her eggs only when the last had been deposited, and then completely concealing them from view. This dam left her eggs at intervals 'when compelled to do so.' This suggests that she was provoked to do so, perhaps with a view to ascertaining the fate of the eggs.

The late Dr. Annandale told me that while the dam in Calcutta was encircling her eggs, her breathing was considerably accelerated. A few hours before the eggs began to hatch she abandoned them to their fate.

Fockelmann's dam is reported to have left her eggs at night when she visited her bath.

The incubation of snakes eggs differs from that of birds, in that the dam imparts no warmth to them. Experiments prove that the dam's body temperature is not raised during this period. It appears to me that in encircling her eggs the python submits them

to darkness and protects them from atmospheric conditions likely to prove detrimental. The fact that in Herr Fockelmann's case, fifteen of the eggs that were rejected by the dam ten days after commencing her maternal devotions, dried up, and when examined proved to be quite hard, with no signs of internal life, seems to suggest this explanation, as several of the other eggs not rejected, hatched out subsequently. I find after very many attempts to incubate snake's eggs artificially, that exposure to sunlight rapidly sterilizes them. In a few hours the shells harden, becoming dimpled first, and shrivelled later. I find the most successful results are attained by submitting them to a process similar to that adopted in the relaxation of butterflies. A piece of slightly damp blotting paper is placed at the bottom of a biscuit tin. On this is placed some cotton wool, and on this the eggs are laid out, and the box lid closed. If the blotting paper is a shade too damp, the eggs become mildewed and sterile. The method here described was successful in hatching out two broods of cobra's eggs by me in Karachi in 1922, and several other broods at different times.

(c) *Season*.—In the three breeding events known to me the eggs were deposited as follows; on April 11, 1909, (Basu's dam in Calcutta), the end of August or beginning of September 1907 (Fockelmann's at Gross-Borstel) and October 28, 1904, (Hagenbeck's in Colombo). These dates suggest that breeding may occur throughout the year.

(d) *Period of Gestation*.—Not known.

(e) *Period of Incubation*.—In Hagenbeck's case the period occupied was 79 days, and in Basu's case from 55 to 60.

(f) *The Eggs*.—Basu's dam laid 59 eggs, Fockelmann's 96, and Hagenbeck's about 100.

Fockelmann records that his eggs measured 10 cm. (about 4 inches) in length, that they were of a depressed oval in shape, with an exceedingly tough shell. The weight of one of Basu's brood was 5½ ounces.

GROWTH. (a) *The Hatchling*.—One of Basu's brood measured exactly 610 mm. (2 feet) when hatched. Hagenbeck's brood measured from 610 to 762 mm. (2 to 2½ feet). The weight of Basu's measured specimen was 4 ounces 2 drachms.

(b) *Early Life*.—Bibron's observations of the growth of young hatched out in Paris, shows that they increased by about 685 mm. (2¼ feet) annually in the first four years of life. A python 33.5 cm. (11 feet long) in London, grew another 30.5 cm. (10 feet) in 11 years, after which no further growth was observed.

(c) *Maturity*.—It is not known at what age this python is sexually mature.

(d) *Maximum Length*.—The reticulate python is the largest snake in the world, attaining to a length of nearly, if not actually, thirty feet. Wallace (*Tropical Nature*, p. 115) records that a Mr. St. John states that he measured one in Borneo that was 26 feet long. Collingwood (*Rambles of a Naturalist*, p. 172) says that Mr. Low assured him he had seen one killed at Labuan that measured 26 feet long, and heard on good authority of one 29 feet. Captain S. S. Flower mentions that a Mr. L. Wray (junr.) measured

one killed at Taiping, Malay States, that was 27 feet. When skinned and stretched it was 33 feet. Hagenbeck's brooding python from Borneo was reported about 28 feet. Cantor mentions one killed at Penang which a gentleman informed him was 30 feet.

WEIGHT. Hagenbeck's 28-footer turned the scale at 250 pounds, i.e. two pounds less than 18 stones.

PARASITES. *Entozoa*.—Pythons harbour many internal parasites. The late Dr. Annandale told me he had dissected many *reticulatus* when in the Malay States, and in some he found extraordinary numbers of a nematode worm (*Ascaris infundibulicola*) in the stomach and intestines. This appears to be a different worm from *Ophidascaris filaria* mentioned by Baylis and Daubuny as occurring abundantly in the alimentary canal of pythons. They were found on nineteen occasions in *molurus*, and the immature worms in the lung of both *molurus* and *reticulatus*. This parasite appears to take up its habitat while immature in the lung, and to migrate to the intestine when attaining its final metamorphosis.

LINGUATULIDS. Dr. Annandale discovered linguatulids on two occasions in the tongues of this species, and one such parasite was removed from the mouth of a *reticulatus*, that died in Calcutta.

These curious parasites have been also called tongue worms. The name is unfortunate since in the pamphlet issued by the British Museum with instructions to collectors of worms, we are told that they are not worms. Their affinities are doubtful, but they are usually considered to belong to the Arachnidae, and therefore are allied to spiders and mites. It is better therefore to drop the name tongue worm, and to refer to them by their scientific name only. Miss Mary Hett, B.Sc., has contributed a paper on these parasites which appeared in the Proceedings of the Zoological Society of London in 1924. From this I extract the following further information :—

The adult is an internal vermiform parasite with a flattened or cylindrical annulated body. The rings vary in number throughout the family but are more or less constant for each species.

The life history usually involves two hosts, an intermediate host which may be a fish or a mammal, and a final host which is usually a reptile, but may be a mammal or bird. The adult is found chiefly in the lungs and air passages of the host, but may occur in the body cavity or alimentary canal. The eggs pass from the lungs by way of the mouth to the alimentary canal, and pass out with the faeces, being scattered over vegetation or into water. The infected vegetation or water gains access to the alimentary canal of the intermediate host in its food. It seems possible however that the whole life cycle may occur in the same host without the agency of the intermediate host. When the embryos still enclosed in the egg envelope reach the alimentary canal of the intermediate host, (or the same host) the outer coverings are dissolved by the digestive juices, and the embryos are set free. By means of a boring apparatus and clawed limbs, the embryo pierces the gut wall, and is carried by the blood or lymph to some organ of the body, usually the lung, where it becomes encysted. Here it undergoes a series

of ecdyses finally emerging from the cyst when the larval development is complete.

The fully developed larva when emerging from the cyst has an annulated body, no limbs, a head with a mouth, around which two pairs of horny hooks are placed with which the parasite anchors itself to the tissues, battening by suction of the host's blood.

SARCOCYSTS. Dr. Annandale in a letter to me says 'all specimens of *P. reticulatus* that I have examined in autopsy, whether here (Calcutta) or in Malaya have had immediately under the skin, numerous little bean-shaped bodies of a livid colour, and varying considerably in size and hardness. These I have little doubt are parasites allied to *Sarcocystes* (Protozoa), but the Patani Malays call them "the strength of the snake" and regard them as centres of its constricting power. They say no python could be strong without them.'

LEPIDOSIS. The shields on the head of pythons are somewhat different from those on colubrids. The body shields and scales are also different in many ways, being more numerous than in colubrids excepting the Sea Snakes.

Rostral.—As deep as broad; visible above; with a pair of large pits. **Internasals.** A pair, nearly as long as the præfrontals. **Præfrontals.** A pair, rather shorter than the frontal; separated from the frontal by a pair of smaller shields. **Frontal.** Usually entire, sometimes more or less divided mesially; about three-fifths the length of the snout. **Supraoculars.** Well developed, usually entire; as long as the frontal. **Parietals.** Not differentiated. **Nasals.** A large shield with the nostril in the upper and posterior part; a suture running from nostril backwards to anterior loreal. **Loreals.** 4 to 5. **Præoculars.** 2 or 3, the upper largest. **Postoculars.** 3 or 4. **Temporals.** Not differentiated. **Supralabials.** 12 to 14; first four with pits; 7th or 8th touching the eye. **Intralabials.** 19 to 22; the first 2 to 3 pitted, and also 5 or 6 of the posterior. **Sublinguals.** Not differentiated; a mental groove between about seven pairs of scales. **Costals.** Two heads-lengths behind the head 57 to 62, midbody 69 to 79, two heads-lengths before the vent 38 to 40. No keels. No apical pits or facets. **Vertebral.** At midbody breadth about two-thirds the length, less than one-third those in the ultimate row. **Ultimate.** Breadth, nearly twice their length; two-fifths that of the ventrals. **Ventrals.** 297 to 330. About eight pairs of scales between the first and the mental groove. **Anal.** Three, the outer corresponding to the ultimate row. **Subcaudals.** 75 to 102; mostly divided, some frequently entire.

DENTITION. From two skulls in my collection. **Praemaxilla.** four sub-equal teeth. **Maxilla.** 16 to 17; anodont, syncranterian, strongly scaphiodont. **Palatine.** 6 to 7; anodont, scaphiodont. **Pterygoid.** 8 to 10; anodont, feebly scaphiodont. **Mandibular.** 17; anodont, feebly kumatodont, the 3rd tooth longest. The teeth in all the jaws are set inwards, and are peculiar in shape, being compressed, rounded on their anterior convex faces, and sharply edged and concave posteriorly.

DISTRIBUTION. Within the political limits of the Indian Empire the reticulate python is confined to Lower Burma, and Tenasserim.

It has also been recorded from the Nicobar Islands. Though Theobald says it is pretty common in Pegu, available records make it appear a rare snake in Lower Burma. Captain Frere sent me some years ago the skin of a specimen killed by an officer of his party in the Pegu Yomas about 15 miles from Minhla. This measured 17 feet 6 inches. The ventrals were 301, and subcaudals dubiously 75. The scales at midbody numbered 75, and the first four supralabials were pitted. This is the only specimen I can vouch for outside Tenasserim. In this province the snake is not uncommon, certainly more common than *molurus*. Mr. Noble for 18 years Superintendent of the Zoological Gardens in Rangoon told Colonel G. H. Evans in 1908, that he only knew of four specimens. These were from Tavoy, Mergui, Rangoon (found in a cargo of cocoanuts on board ship), and dubiously Pegu where he said Colonel Bingham obtained a specimen. Colonel Bingham however shortly before his death wrote in answer to my enquiries that his specimen was from Martaban. Captain Frere sent me the skin of one from the Amherst District. Mr. Smith, I. F. S. during his jungle work in S. Tenasserim 1925 had six pythons brought in by his coolies. One skin examined by me was a *molurus*, and one a *reticulatus*. The remaining four were reported *reticulatus*.

This python has at times been transported in ships from port to port. One of Noble's four just alluded to was found in Rangoon in a cargo ship. One was discovered in the cargo of a ship in Bombay that had arrived from Moulmein. Another was found in the hold of a ship in the Albert Docks, London, in 1907, and transferred alive to Regent's Park.